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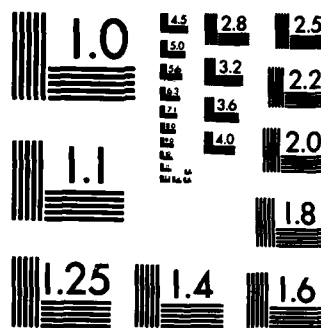
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**HUMAN
RESOURCES**

SCREENING COMPOSITES FOR AIR FORCE OFFICERS

Deborah L. Rogers, 1st Lt, USAF

MANPOWER AND PERSONNEL DIVISION
Brooks Air Force Base, Texas 78235-5601

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) The purpose of this effort was to develop an instrument to predict success on the Air Force Officer Qualifying Test (AFOQT) Form O. This new device, to be used by recruiters, will aid in the identification of individuals likely to pass the AFOQT requirements in applying for a commission in the Air Force. The subjects in the study were 37,409 applicants taking AFOQT Form O, the current operational form. Items were selected from the AFOQT to make up subcomposites referred to as Officer Screening Composites (OSCs). The OSCs correspond to the five composites (Pilot, Navigator-Technical, Academic Aptitude, Verbal, and Quantitative) that make up the AFOQT. This work resulted in the development of five OSC conversion tables, OSC-P, OSC-W, OSC-A, OSC-V, and OSC-Q, consisting of OSC raw scores, the corresponding expected AFOQT percentile score, and a 90% confidence interval.					
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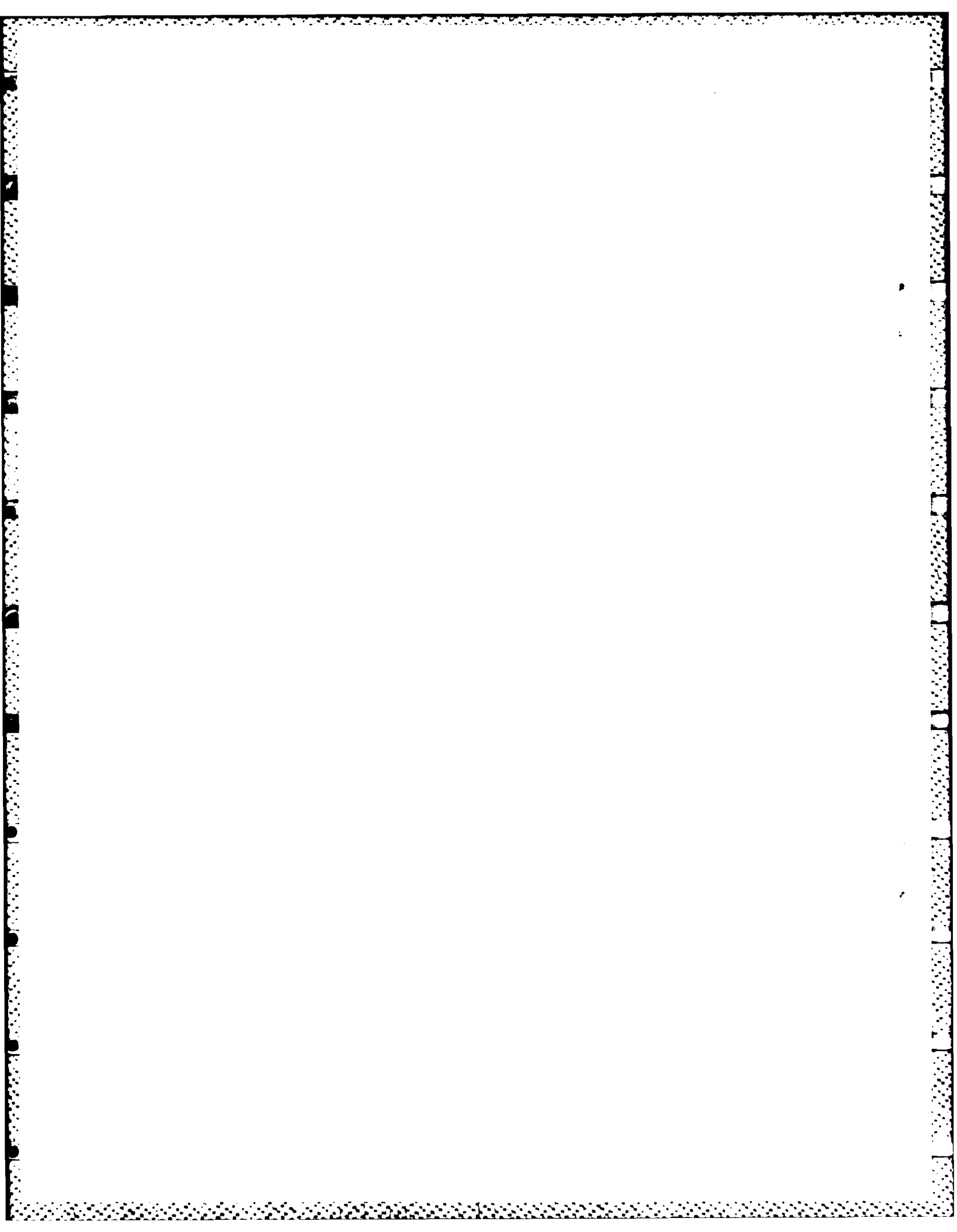
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SUMMARY

This paper describes the development of Officer Screening Composites (OSCs), designed to assist Air Force test administrators and recruiters in obtaining a quick and accurate estimate of applicants' aptitude scores on the Air Force Officer Qualifying Test (AFOQT), Form 0. Scoring of AFOQT-0 is centralized, causing a 1- to 2-week delay before official test results on applicants are available to recruiters. The delay slows processing of applicants and may have a negative impact on the officer recruiting capability since potential recruits may seek other employment opportunities. The OSC procedure was needed to help recruiters prescreen applicants and to expedite the processing of candidates with a high likelihood of meeting aptitude requirements for commissioning. The OSCs consist of abbreviated versions of the five composites on AFOQT-0: Pilot, Navigator-Technical, Academic Aptitude, Verbal, and Quantitative. Subsets of items in AFOQT-0 were selected for separate scoring as the OSCs. The scores on OSC items were validated using a sample of 37,409 applicants. The results indicated that applicants' scores on the OSCs were highly correlated with their official scores on the AFOQT-0 composites. The OSC procedure provides an accurate and efficient indicator of test performance on AFOQT-0 and is a valid tool for recruiters to use in prescreening officer applicants. To help recruiters apply the OSC procedure, five tables--one for each composite--were developed to show the conversion of OSC raw scores to expected AFOQT-0 percentile scores. It is recommended that the OSC measures be implemented at all AFOQT-0 testing sites.

PREFACE

This work was conducted under Task 771918, Personnel Qualifications Test, which is part of a larger effort in Force Acquisition and Distribution Systems. It was started under work unit 77191819, Officer Selection and Classification Measures, and was completed under work unit 77191847, Development and Validation of Civilian and Nonrated Officer Selection Methodologies.

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SCREENING COMPOSITES FOR AIR FORCE OFFICERS

I. INTRODUCTION

The Air Force, like other organizations, is concerned with selection of qualified individuals to fill jobs. Identifying individuals most likely to be successful in training and on the job is the ultimate goal of the selection and classification process.

To aid in selection, the Air Force currently employs two major aptitude tests. The first test, the Air Force Officer Qualifying Test (AFOQT), is given to those individuals applying for a commission (Rogers & Roach, in press). The second test used for selection is the Armed Services Vocational Aptitude Battery (ASVAB). This test is used by all of the military services to select enlisted members for duty (Ree, Mathews, Mullins, & Massey, 1982). In order to reduce costs associated with processing applicants, prescreening of the applicants is necessary. The Enlistment Screening Test is currently used for prescreening with the ASVAB (Mathews & Ree, 1982); however, there is no corresponding instrument for use with the AFOQT.

In the past several prescreening tests have been associated with the AFOQT. The Air Force Precommissioning Screening Test (AFPST) was developed to screen applicants for navigator training and to select applicants for the Air Force Academy Preparatory School (Valentine, 1961). This test was a shortened version of the Officer Quality composite (now referred to as the Academic Aptitude composite), one of the five composites that make up the AFOQT. The AFPST was revised and implemented in 1965 (Miller, 1966), and renamed the Pre-Enrollment Test. Miller (1968) revised the Pre-Enrollment Test again in 1967. Both the Air Force Precommissioning Screening Test and the Pre-Enrollment Test were designed to predict performance on the AFOQT. The Pre-Enrollment Test, however, was discontinued in April 1969, leaving recruiters without a prescreening device for officer applicants.

A need for a prescreening device to be used in conjunction with the current operational form of the AFOQT (Form 0) surfaced again in July 1982. The purpose of this effort was to develop a tool to aid recruiters in identifying those applicants for Officer Training School (OTS) who are most likely to succeed on AFOQT-0.

II. METHOD

Item Selection for the Officer Screening Composites (OSC)

The new prescreening device, referred to as the Officer Screening Composites (OSCs), was designed to be an integral part of AFOQT-0, thus avoiding the development of a separate test. The AFOQT is currently machine-scored at a central location. Scoring turnaround time is 7 to 9 days for the recruiters. The OSCs can be handscored by qualified test administrators, giving the recruiters an immediate indication of the individual's probable ability on the AFOQT as a whole. This feedback will allow the recruiters the advantage of more timely scheduling of processing activities. To accomplish this goal, five subsets of items from the operational administration of the AFOQT were scored separately. These subsets approximated the content of the five AFOQT composites: Pilot, Navigator-Technical, Academic Aptitude, Verbal, and Quantitative.

The AFOQT contains 16 subtests which make up the five composites (some subtests are used in more than one composite). OSC measures were developed to correspond with each AFOQT composite, by selecting items from subtests in the composite. However, there were two OSC measures developed for the AFOQT Navigator-Technical composite: one with Quantitative items (OSC-N_q)

and one without (OSC-N). Both were generated to compare their predictive ability. If the OSC-N predicted as well as did the OSC-N_a, it would be used in the final product because of having fewer items to be scored. The OSC measures are referred to as Officer Screening Composite-Pilot (OSC-P), Officer Screening Composite-Navigator (OSC-N), Officer Screening Composite-N_a (OSC-N_a), Officer Screening Composite-Academic Aptitude (OSC-A), Officer Screening Composite-Verbal (OSC-V), and Officer Screening Composite-Quantitative (OSC-Q).

Candidate items for the screening composites were identified primarily by inspecting item correlation statistics. The final content of the screening composites in terms of AFOQT subtests and number of items is shown in Table 1. Items selected for OSC-P and OSC-N had high biserial correlations with the corresponding AFOQT composite raw score. As shown in Table 1, not all subtests in the AFOQT Pilot and Navigator-Technical composites were represented in OSC-P and OSC-N. The second Navigator-Technical screening composite, N_a, contained the same items used in OSC-N plus those used in OSC-Q. Items for OSC-Q were selected on the basis of high biserial correlations with raw scores on the subtests which make up the AFOQT Quantitative composite. The same procedure was followed to select items for OSC-V. OSC-A was formed by combining the items in OSC-Q and OSC-V.

Table 1. Content of OSC

AFOQT-O Subtest	Number of Items					
	OSC-P	OSC-N	OSC-N _a	OSC-A	OSC-V	OSC-Q
Verbal Analogies	-			6	6	
Arithmetic Reasoning		-	7	7		7
Reading Comprehension				7	7	
Data Interpretation		-	6	6		6
Word Knowledge				7	7	
Math Knowledge		-	7	7		7
Mechanical Comprehension	2	-	-			
Electrical Maze	4	-	-			
Scale Reading	-	3	3			
Instrument Comprehension	5					
Block Counting	18	12	12			
Table Reading	11	15	15			
Aviation Information	-					
Rotated Blocks		8	8			
General Science		2	2			
Hidden Figures		-	-			

Note: Dash (-) indicates those subtests which are represented in the corresponding full composite but not the screening composite.

Subjects

The OSC validation sample consisted of individuals taking AFOQT-O. A total sample of 37,409 was used. Composition of the total sample is described in Table 2.

Table 2. Distribution of the Sample

Subgroup	N
Source of Commission	
OTS	30,465
AFROTC	6,944
Sex	
Male	32,742
Female	4,503
Unknown	164
Race	
American Indian or Alaskan Native	354
Asian or Pacific Islander	1,004
Black, but not of Hispanic Origin	4,958
Hispanic	1,678
White, but not of Hispanic Origin	29,261
Unknown	154

Procedure

A Pearson product-moment correlation was computed between each of the five AFOQT composites and each OSC for the total group. Distributions were also obtained for each scoring increment of the OSC versus the z-score mean and standard deviation (SD) for a 90% confidence interval ($z = \text{Mean} + 1.645 \text{ SD}$), a 95% confidence interval ($z = \text{Mean} + 1.96 \text{ SD}$), and a 99% confidence interval ($z = \text{Mean} + 2.58 \text{ SD}$).

III. RESULTS AND DISCUSSION

Because the OSCs are a subset of the AFOQT, the correlations between each AFOQT composite and the corresponding OSC score were high (see Table 3). The Navigator-Technical composite correlated higher with OSC-N_a than it did with OSC-N. The reason is that the AFOQT Navigator-Technical composite and OSC-N_a both include Quantitative items.

Table 3. Correlation Between OSC and AFOQT-O Composites

AFOQT Composites	OSC-P	OSC-N	OSC-N _a	OSC-A	OSC-V	OSC-Q
Pilot	<u>.892*</u>	.853*	.873*	.721*	.581*	.702*
Navigator-Technical	<u>.849*</u>	<u>.868*</u>	<u>.942*</u>	.790*	.583*	.831*
Academic Aptitude	.602*	<u>.632*</u>	<u>.789*</u>	<u>.964*</u>	.874*	.827*
Verbal	.468*	.488*	.583*	<u>.884*</u>	<u>.953*</u>	.582*
Quantitative	.631*	.666*	.862*	.854*	<u>.598*</u>	<u>.937*</u>

*Significant at the .001 level. Correlations between each OSC and its corresponding AFOQT score are underlined.

The distributions of z provided in the tables can be used to convert a given OSC raw score to the expected AFOQT-0 percentile score for a particular composite. The percentile score range of the confidence intervals was, of course, wider for the 99% confidence interval and narrower for the 90% confidence interval. Because this is to be a workable tool for the recruiters, the 90% confidence interval was chosen to develop the conversion tables for the OSC (see Appendix).

The expected AFOQT-0 percentile score that corresponds to each OSC raw score was computed by finding the median of each confidence interval. These scores accompanied by the confidence intervals provide recruiters with a workable tool for predicting success on the AFOQT.

IV. CONCLUSIONS AND RECOMMENDATIONS

OSC scores are effective predictors of test performance on AFOQT-0, as indicated by their high positive correlations with AFOQT composite scores. The OSC provides recruiters with an efficient and valid tool for prescreening and managing applicants. Using OSC results recruiters can make sound judgments about the advisability of continuing to process an applicant while waiting to receive official AFOQT-0 scores.

Analysis results support the following conclusions.

1. Recruiters can place a high degree of confidence in the prescreening procedure. On any single composite, the expected AFOQT-0 percentile score will fall within the score interval provided in the conversion table for at least 90% of the applicants whose tests are scored using the corresponding OSC.

2. Recruiters can use the OSC to rank-order applicants from highest to lowest predicted AFOQT-0 scores. The results provide the opportunity for applicant resources to be managed more effectively; recruiters can expedite the processing of high-ranking applicants who are most likely to meet Air Force aptitude entry requirements.

3. Although OSC scores were originally designed to aid recruiters who process applicants for OTS, they can also be used effectively by test administrators at Reserve Officer Training Corps (ROTC) detachments.

It is recommended that the OSC measures be implemented at all AFOQT-0 testing sites.

REFERENCES

- Mathews, J.J., & Ree, M.J. (1982, March). Enlistment Screening Test Forms 81a and 81b: Development and calibration (AFHRL-TR-81-54, AD-A113 464). Brooks AFB, TX: Air Force Human Resources Laboratory, Manpower and Personnel Division.
- Miller, R.E. (1966, June). Development of officer selection and classification tests - 1966 (PRL-TR-66-5, AD-639 237). Lackland AFB, TX: Personnel Research Laboratory, Aerospace Medical Division.
- Miller, R. E. (1968, July). Development of officer selection and classification tests - 1968 (AFHRL-TR-68-104, AD-679 989). Lackland AFB, TX: Air Force Human Resources Laboratory, Personnel Research Division.

Ree, M.J., Mathews, J.J., Mullins, C.J. & Massey, R.H. (1982, February). Calibration of Armed Services Vocational Aptitude Battery Forms 8, 9, and 10 (AFHRL-TR-81-49, AD-A114 714). Brooks AFB, TX: Air Force Human Resources Laboratory, Manpower and Personnel Division.

Rogers, D.L., & Roach, B.W. (1985, in press). Air Force Officer Qualifying Test Form O: Development and standardization. Brooks AFB, TX: Air Force Human Resources Laboratory, Manpower and Personnel Division.

Valentine, L.D., Jr. (1961, October). Development of the Air Force Precommission Screening Test-62 (ASD-TN-61-146, AD-269 527). Lackland AFB, TX: Personnel Laboratory, Aeronautical Systems Division, October 1961.

APPENDIX: OFFICER SCREENING COMPOSITE TABLES

Table A-1. Conversion Table Officer Screening Composite - P

OSC-P Raw Score	Expected AFQQT-0 Pilot Composite Percentile	Expected Percentile Score Range (90% CI)
0	01	01 - 01
1	01	01 - 01
2	01	01 - 01
3	02	01 - 02
4	02	01 - 04
5	02	01 - 04
6	03	01 - 04
7	03	01 - 05
8	04	01 - 06
9	05	01 - 10
10	06	01 - 13
11	06	01 - 13
12	09	02 - 17
13	11	02 - 20
14	13	03 - 24
15	15	03 - 27
16	18	04 - 32
17	21	06 - 36
18	25	07 - 42
19	28	10 - 46
20	31	12 - 51
21	34	13 - 55
22	38	17 - 60
23	41	19 - 64
24	46	22 - 70
25	50	25 - 74
26	53	29 - 78
27	57	33 - 81
28	60	36 - 84
29	62	39 - 86
30	68	46 - 90
31	71	48 - 94
32	74	53 - 95
33	76	57 - 96
34	80	63 - 97
35	83	69 - 98
36	87	75 - 98
37	88	76 - 99
38	91	84 - 99
39	93	88 - 99
40	95	92 - 99

Table A-2. Conversion Table Officer Screening Composite - N_a

OSC-N _a Raw Score	Expected	Expected Percentile
	AFQT-0 Nav-Tech Composite Percentile	Score Range (90% CI)
0	01	01 - 01
1	01	01 - 01
2	01	01 - 01
3	01	01 - 01
4	01	01 - 01
5	01	01 - 01
6	01	01 - 01
7	01	01 - 01
8	01	01 - 02
9	01	01 - 02
10	01	01 - 03
11	02	01 - 03
12	02	01 - 04
13	03	01 - 05
14	03	01 - 05
15	03	01 - 07
16	04	01 - 07
17	04	01 - 08
18	06	01 - 11
19	06	01 - 12
20	07	01 - 13
21	08	02 - 14
22	09	02 - 16
23	10	03 - 17
24	11	03 - 19
25	12	04 - 21
26	14	05 - 23
27	16	05 - 27
28	18	07 - 29
29	20	08 - 31
30	23	09 - 36
31	25	11 - 38
32	27	13 - 42
33	28	14 - 43
34	32	16 - 48
35	34	18 - 50
36	37	20 - 54
37	40	21 - 59

Table A-2 (concluded)

OSC-N _a Raw Score	Expected AFQQT-0 Nav-Tech Composite Percentile	Expected Percentile Score Range (90% CI)
38	43	25 - 62
39	46	28 - 65
40	49	30 - 68
41	52	33 - 72
42	55	37 - 73
43	59	41 - 77
44	61	42 - 81
45	64	47 - 82
46	68	50 - 87
47	71	55 - 88
48	72	58 - 90
49	77	62 - 93
50	80	65 - 95
51	83	70 - 96
52	85	73 - 97
53	87	77 - 98
54	90	81 - 99
55	91	83 - 99
56	93	88 - 99
57	94	90 - 99
58	95	91 - 99
59	97	95 - 99
60	98	97 - 99

Table A-3. Conversion Table Officer Screening Composite - A

OSC-A Raw Score	Expected AFQT-0 Academic Aptitude Composite Percentile	Expected Percentile Score Range (90% CI)
0	01	01 - 01
1	02	01 - 03
2	02	01 - 03
3	03	01 - 05
4	03	01 - 05
5	03	01 - 06
6	03	01 - 07
7	05	02 - 09
8	07	02 - 11
9	08	03 - 13
10	09	03 - 16
11	11	05 - 18
12	12	05 - 20
13	14	07 - 22
14	16	08 - 25
15	18	09 - 27
16	20	10 - 31
17	24	13 - 35
18	27	16 - 38
19	28	16 - 40
20	31	19 - 44
21	35	21 - 49
22	38	24 - 52
23	40	26 - 54
24	44	29 - 59
25	48	34 - 63
26	52	36 - 68
27	55	40 - 70
28	60	44 - 75
29	64	49 - 79
30	66	51 - 81
31	69	54 - 84
32	74	61 - 87
33	77	65 - 89
34	80	68 - 92
35	83	72 - 95
36	87	79 - 96
37	90	82 - 98
38	92	86 - 98
39	95	91 - 99
40	96	93 - 99

Table A-4. Conversion Table Officer Screening Composite - V

OSC-V Raw Score	Expected AFOQT-O Verbal Composite Percentile	Expected Percentile Score Range (90% CI)
0	04	01 - 08
1	05	01 - 10
2	07	01 - 13
3	08	02 - 15
4	11	03 - 19
5	14	05 - 24
6	19	08 - 30
7	22	11 - 33
8	26	13 - 40
9	30	17 - 44
10	34	19 - 50
11	39	24 - 55
12	44	27 - 60
13	49	33 - 64
14	55	38 - 72
15	60	44 - 77
16	67	50 - 84
17	72	57 - 87
18	78	64 - 93
19	85	72 - 98
20	91	84 - 99

Table A-5. Conversion Table Officer Screening Composite - Q

OSC-Q Raw Score	Expected AFQT-0 Quantitative Composite Percentile	Expected Percentile Score Range (90% CI)
0	02	01 - 03
1	03	01 - 05
2	05	01 - 09
3	06	02 - 11
4	09	02 - 17
5	12	03 - 21
6	16	04 - 28
7	20	06 - 34
8	25	09 - 41
9	29	14 - 45
10	35	17 - 54
11	41	24 - 59
12	47	28 - 66
13	54	34 - 75
14	59	41 - 78
15	66	48 - 85
16	73	57 - 90
17	78	64 - 93
18	83	71 - 95
19	89	80 - 98
20	92	86 - 99

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